

DEPTH MAP CREATION THROUGH HYPOTHESIS BLENDING
IN A BAYESIAN FRAMEWORK

ABSTRACT OF THE DISCLOSURE

[0039] The present invention is directed toward a system and method for creation of an optimized depth map through iterative blending of a plurality of hypothetical depth maps in a Bayesian framework of probabilities. The system begins with an estimate of a depth map for a reference image, the estimated depth map becoming the current depth map. The system also has available to it a plurality of hypothetical depth maps of the reference image, derived from any of several known depth map generation methods and algorithms. The current depth map and each hypothetical depth map are compared iteratively, a pixel or pixel pair at a time, relying on minimizing reprojection and discontinuity energies through a graph cut process within a Bayesian probability framework to calculate the optimum assignment of depth map values to the reference image pixels. In this process, the two depth maps are blended into a depth map that is more representative of the reference image, with the blended depth map becoming the new, current depth map. The optimization or blending process terminates when the differences between depth map values for each pixel or each group of pixels reach a desired minimum.